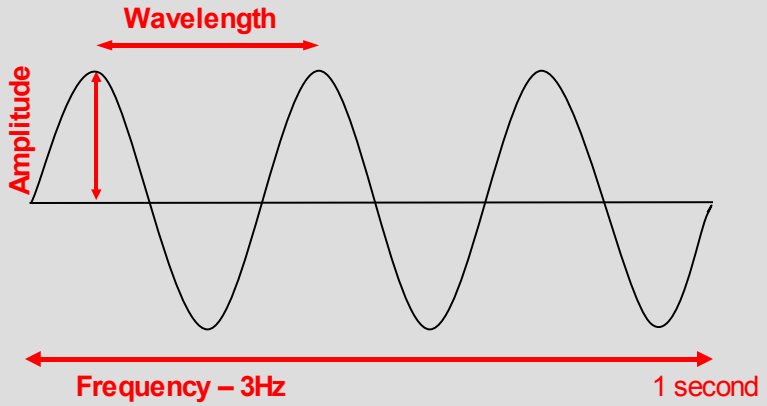
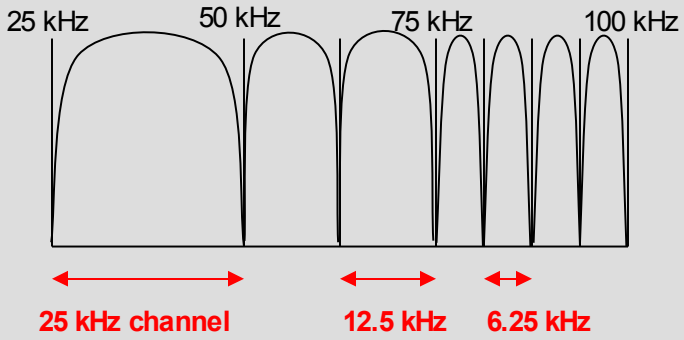
Public Safety Radio Communications

Narrowbanding Mandate

Frequency and Bandwidth

- **Frequency** is the number of cycles a wave is repeated in a given time (per second)
- **Hertz (Hz)** is the unit of measurement for frequency (cycle per second)
  - 1,000 Hz = 1 kHz
  - 1,000,000 Hz = 1 MHz
  - 1,000,000,000 Hz = 1 GHz
- **Bandwidth** is the range of frequencies for a communications channel





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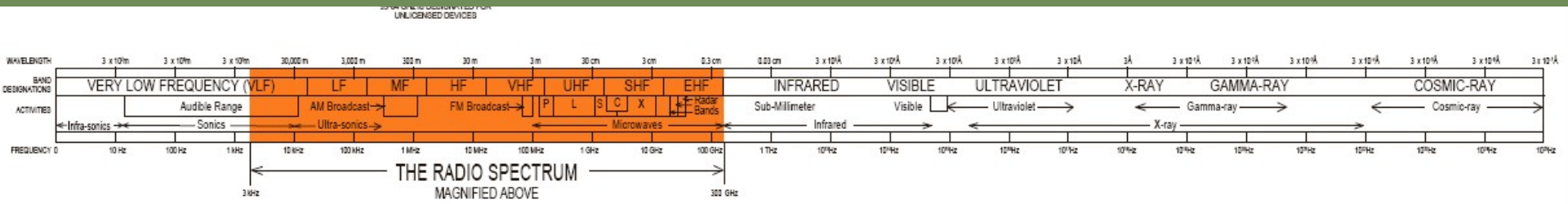
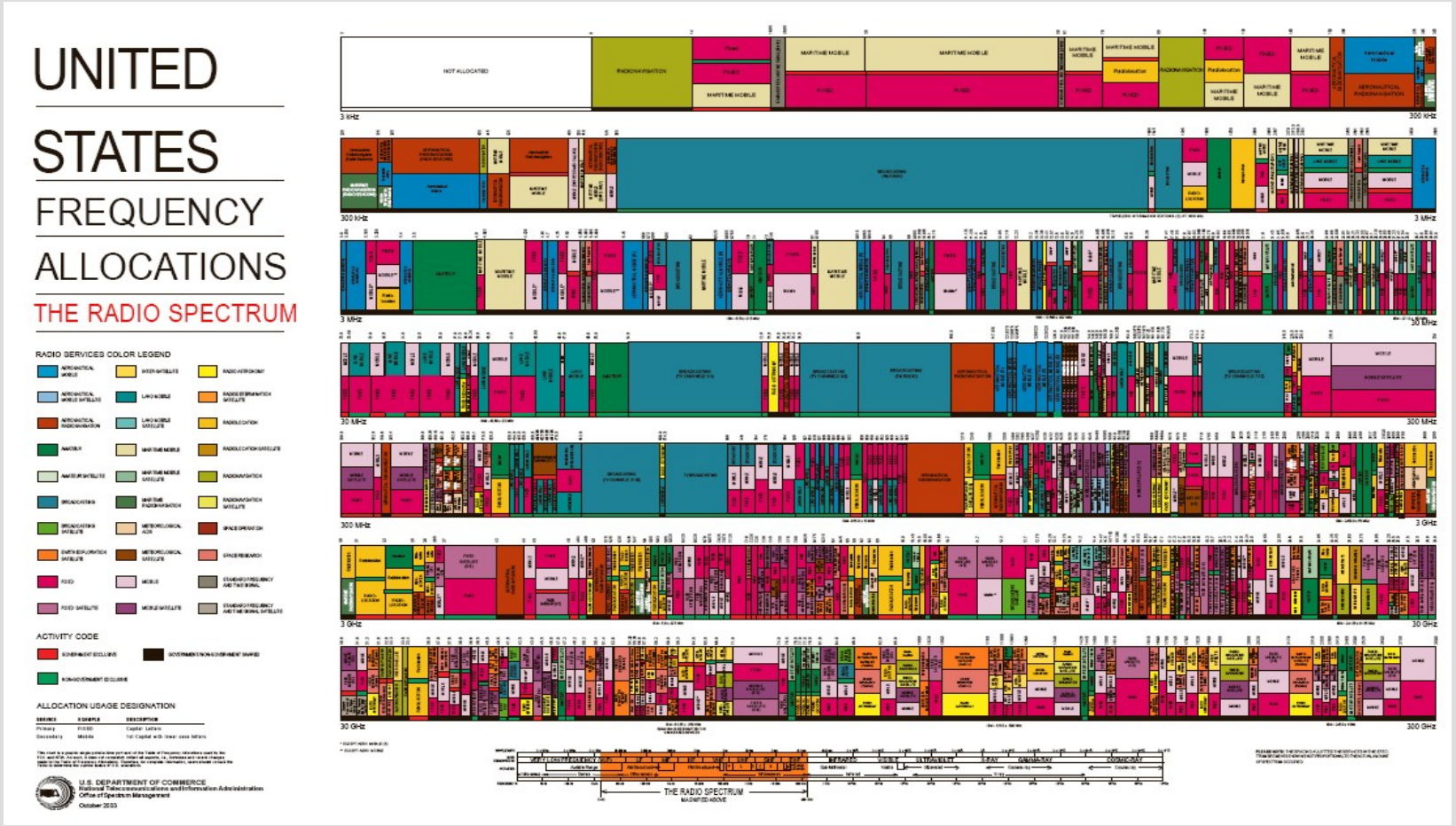
Frequency Bands



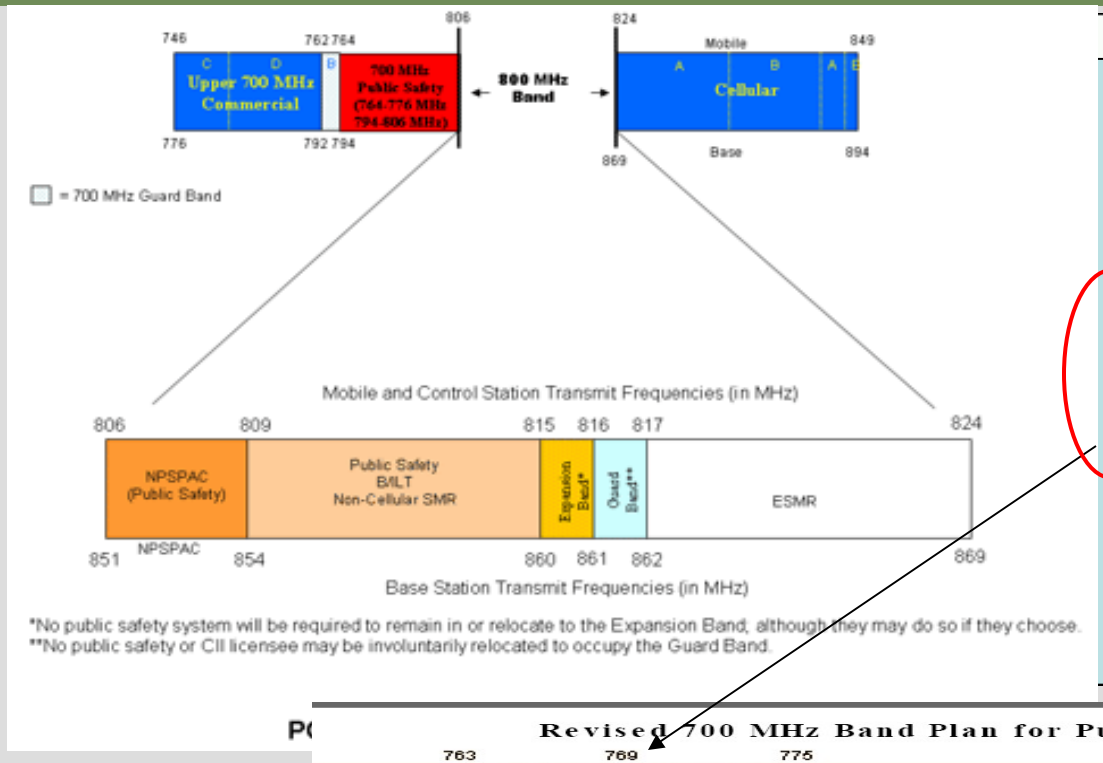
	Designation	Frequency	Wavelength
ELF	extremely low frequency	3Hz to 30Hz	100,000km to 10,000 km
SLF	superlow frequency	30Hz to 300Hz	10,000km to 1,000km
ULF	ultralow frequency	300Hz to 3000Hz	1,000km to 100km
VLF	very low frequency	3kHz to 30kHz	100km to 10km
LF	low frequency	30kHz to 300kHz	10km to 1km
MF	medium frequency	300kHz to 3000kHz	1km to 100m
HF	high frequency	3MHz to 30MHz	100m to 10m
VHF	very high frequency	30MHz to 300MHz	10m to 1m
UHF	ultrahigh frequency	300MHz to 3000MHz	1m to 10cm
SHF	superhigh frequency	3GHz to 30GHz	10cm to 1cm
EHF	extremely high frequency	30GHz to 300GHz	1cm to 1mm

U.S. Frequency Allocations



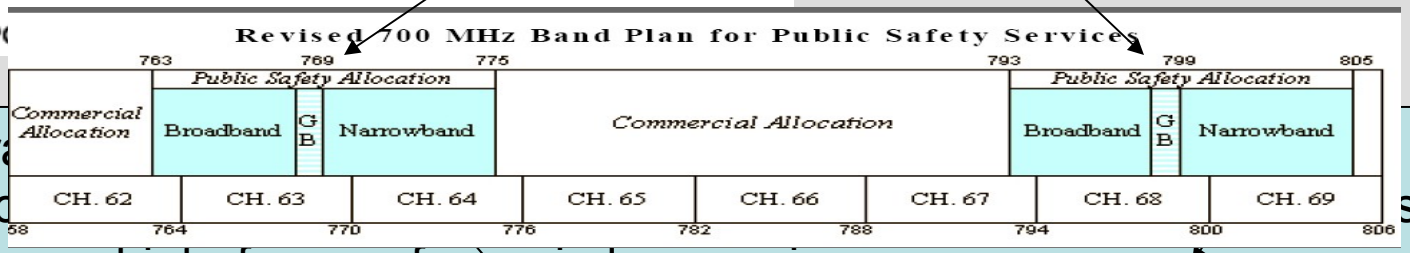
Source: National Telecommunications and Information Administration http://www.ntia.doc.gov/osmhome/allochrt.pdf

Public Safety Frequency Changes



The FCC has mandated that all users operating below 512 MHz move to 12.5 kHz wide channels by 01/01/2013

After 01/01/2011 the FCC will not allow the manufacture of equipment operating above 12.5 kHz channels.



- Users opera
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    to prevent interference from wireless carriers
  - 960 channels at 6.25 kHz each = 6 MHz
- This will require some changes to Public Safety frequencies and channels

UCAN 800 MHz Trunked System

- Utah Communications Agency Network (UCAN) provides 800 MHz radio coverage on a trunked† system along the Wasatch front
- UCAN is an independent state agency that sets rates to recover costs of the 800 MHz system
- State Agencies pay rates to UCAN for their share of the system
- There are 3,700 state users and 11,650 local/non-state agency users on UCAN

† **Trunking** allows users to share a pool of channels rather than a dedicated channel – a central computer assigns frequencies to users

Utah State Interoperability Executive Committee (SIEC)

- Comprised of state and local representatives to create a strategy for interoperable emergency communications in Utah
- The SIEC meets regularly and is discussing the issue of Narrow banding
  - A sub committee of technical experts is developing a plan of what technology the State should invest in
  - The SIEC will present their findings to the Governor and the Legislature

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